REMARKS

Claims 1-24 were pending. Claims 1, 6-7, 9, 14-17, and 22-23 have been amended. Claims 2-5, 8, 10-13, 16, 18-21, and 24 have been cancelled. Claims 25-30 are newly submitted. The Abstract has been amended to be a concise statement of the technical disclosure within the Applicant's specification. No new matter has been added. Accordingly, claims 1, 6-7, 9, 14-15, 17, 22-23, and 25-30 remain pending in the application. Reconsideration is respectfully requested in view of the amendments to the claims and the following remarks.

I.   Specification

The Abstract was objected to as being a copy of the Summary. Applicant has amended the Abstract to be a concise statement of the technical disclosure described in Applicant's specification. No new matter has been added.

II.   The § 101 Rejections

Claims 1-24 were rejected under 35 U.S.C. § 101, as not being directed to statutory subject matter. Applicant has amended each of independent claims 1, 6, 9, 14, 17 and 22 such that each of the claims is directed to statutory subject matter.

In particular, 35 U.S.C. § 101 requires that the subject matter sought to be patented be a "useful" process, machine, manufacture, or composition of matter, and have a practical application. The timestamp value recited in the independent claims is to be used by an application (e.g., for controlling a locking scheme associated with recording data updates in the database system) or to be used by a customer of the database system.

III. The § 103 Rejections

1. Claims 1-4, 9-12, and 17-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,882,994 ("Yoshimura") in view of U.S. Patent No. 6,999,977 ("Norcott").

Applicant respectfully traverses these rejections.

Claim 1, as amended, recites a method for providing a timestamp for data in a database system, in which the database system operates in accordance with a database schema. The method includes providing a hidden timestamp column in a table in the database system. The hidden timestamp column includes a timestamp value for each row of data in the table, and the timestamp value indicates a last time a corresponding row of data in the table was previously modified. The hidden timestamp column does not appear in the database schema by default and exposes the timestamp value for a given row of data in the table only to a query that calls the timestamp column by name.

A potential advantage of such a hidden timestamp that exposes a timestamp value for a given row of data in a table only to a query that calls the timestamp column by name is that the hidden timestamp column does not show up in queries of applications that do not have a need for (or do not expect) such a column (specification page 4, lines 13-20.

A. *Yoshimura Fails To Disclose Providing A Hidden Timestamp Column That Does Not Appear In A Database Schema By Default And Exposes A Timestamp Value For A Given Row Of Data In A Table Only To A Query That Calls The Timestamp Column By Name*

Yoshimura discloses techniques for answering a user's query to a database system (see Abstract). More specifically, Yoshimura provides a database querying method in which a first

data item is obtained from a database table in response to a query request, and a second data item (e.g., a timestamp) is obtained by referencing a log file. The first and second data items are integrated and returned as an integration result to the query request (see Abstract; col. 2, ll. 13-23). The Examiner recognizes that Yoshimura fails to disclose a hidden timestamp. Consequently, Yoshimura cannot disclose providing a hidden timestamp column that does not appear in a database schema by default and exposes a timestamp value for a given row of data in a table only to a query that calls the timestamp column by name. The Examiner, however, asserts that the limitation – providing a hidden timestamp column – as recited in claim 1, is disclosed by Norcott.

B. *Norcott Fails To Disclose Providing A Hidden Timestamp Column That Does Not Appear In A Database Schema By Default And Exposes A Timestamp Value For A Given Row Of Data In A Table Only To A Query That Calls The Timestamp Column By Name*

Norcott discloses a method for maintaining changes made to on-line transaction processing (OLTP) tables in a database object (i.e., a change table) (see Abstract). Referring to FIG. 2, the change table includes a set of <u>source table columns</u> 231 and a <u>control column</u> TIME 235. The control column TIME 235 contains the commit time of a transaction that gave rise to the change data (col. 6, ll. 27-30; ll. 55-59).

Norcott discloses a publication-subscription model that permits subscriber applications to request access to change data in a change table in a controlled manner. In particular, the publication-subscription model restricts the range of rows that a subscriber application can see in a subscriber view (col. 7, ll. 39-45), and the publication-subscription model also permits a subscriber to subscribe to only particular *source column tables* (col. 9, ll. 55-60). While Norcott

restricts the *range of rows* that a subscriber application can see in a subscriber view, and further permits a subscriber to subscribe to particular *source column tables,* Norcott fails to disclose that the *control column* TIME 235 is restricted or hidden in any manner. Norcott, therefore, fails to disclose providing a hidden timestamp column that does not appear in a database schema by default and exposes a timestamp value for a given row of data in a table only to a query that calls the timestamp column by name.

C. *The claim has limitations not taught by either reference*

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Yoshimura and Norcott (either alone or in combination) fail to disclose providing a hidden timestamp column that does not appear in a database schema by default and exposes a timestamp value for a given row of data in a table only to a query that calls the timestamp column by name. Consequently, the combination of Yoshimura and Norcott cannot render claim 1 obvious.

For at least these reasons, Applicant submits that claim 1, and the claims that depend therefrom, are in condition for allowance.

D. *Other Independent Claims*

Claims 9 and 17 each incorporates limitations similar to those of claim 1. Claims 9 and 17, and the claims that depend therefrom, are also allowable over Yoshimura and Norcott for reasons corresponding to those set forth with respect to claim 1.

2. Claims 6-8, 14-16, and 22-24 were rejected under 35 U.S.C. § 103(a) as being

unpatentable over U.S. Patent No. 5,721,915 ("Sockut") in view of Yoshimura.

Applicant respectfully traverses these rejections.

Claim 6, as amended, recites a method for providing a timestamp for data in a database

system. In particular, the method includes providing a page timestamp in the data page, in which

the page timestamp has a timestamp value that indicates a last time at least one of the plurality of

rows in the data page was previously modified. The timestamp value is converted from a log

relative byte address associated with the last time the at least one of the plurality of rows in the

data page was previously modified.

E. *Sockut Fails To Disclose A Timestamp Value of a Page Timestamp Having Been
   Converted From A Log Relative Byte Address*

Sockut discloses reorganization of a database management system (DBMS) (see

Abstract). In Sockut's system, data is stored in a two-dimensional data table, which may be

stored in a table space (col. 5, ll. 56-58). Referring to FIG. 2, Sockut's table space includes a file

page, in which the header of the file page includes a relative byte address (RBA 214) (col. 5, l.

66 – col. 6, l. 24). The Examiner recognizes that Sockut fails to disclose a timestamp.

Consequently, Sockut fails to disclose providing a timestamp value of a page timestamp having

been converted from a log relative byte address.

F. *Yoshimura Fails To Disclose A Timestamp Value of a Page Timestamp Having Been
   Converted From A Log Relative Byte Address*

As discussed above, while Yoshimura discloses a timestamp Yoshimura, however, fails

to disclose providing a timestamp value of a page timestamp having been converted from a log

relative byte address.

G. *The claim has limitations not taught by either reference*

Sockut and Yoshimura (either alone or in combination) fail to disclose providing a timestamp value of a page timestamp having been converted from a log relative byte address. Consequently, the combination of Sockut and Yoshimura cannot render claim 6 obvious.

For at least these reasons, Applicant submits that claim 6, and the claims that depend therefrom, are in condition for allowance.

H. *Other Independent Claims*

Claims 14 and 22 each incorporates limitations similar to those of claim 6. Claims 14 and 22, and the claims that depend therefrom, are also allowable over Sockut and Yoshimura for reasons corresponding to those set forth with respect to claim 6.

In view of the foregoing, Applicant submits that claims 1, 6-7, 9, 14-15, 17, 22-23, and 25-30 are allowable over the references cited above, and are in condition for allowance. Should any unresolved issues remain, the Examiner is invited to call the undersigned at the telephone number indicated below.

Respectfully submitted,

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